# Optimistic DNS

## draft-gakiwate-dnsop-optimistic-dns

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**HAPPY WG**
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A client-side stub resolver mechanism
that immediately returns
expired cached DNS records
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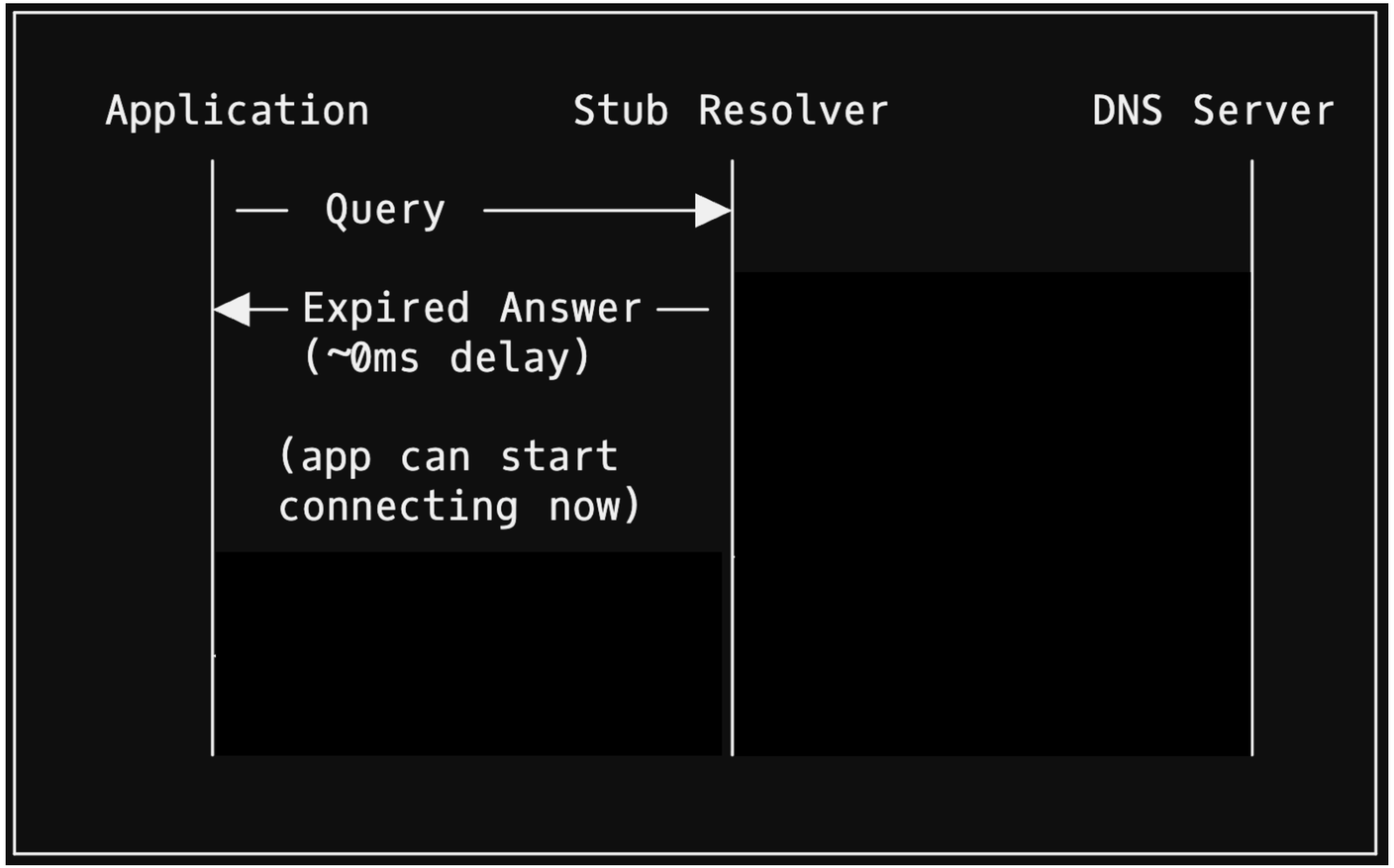
# Motivation

## Post-Expiry Latency Spike

| Time (Seconds) | Response Latency | Notes |
|---|---|---|
| **t=0** | 150 ms | First Lookup (TTL = 60s) |
| **t=15** | ~0 ms | Cache Hit |
| **t=59** | ~0 ms | Cache Hit |
| **t=61** | 150 ms | Expired (New Query) |

- Record is valid for 60 seconds, then invalid for the fraction of a second it takes to refresh it.
- Yet that fraction of a second is the one the user notices because it causes intermittent slowness.
- Unlikely, that answer changed in those 2 seconds.
- Proactive refreshing does not work at the stub resolver.

# Optimistic DNS



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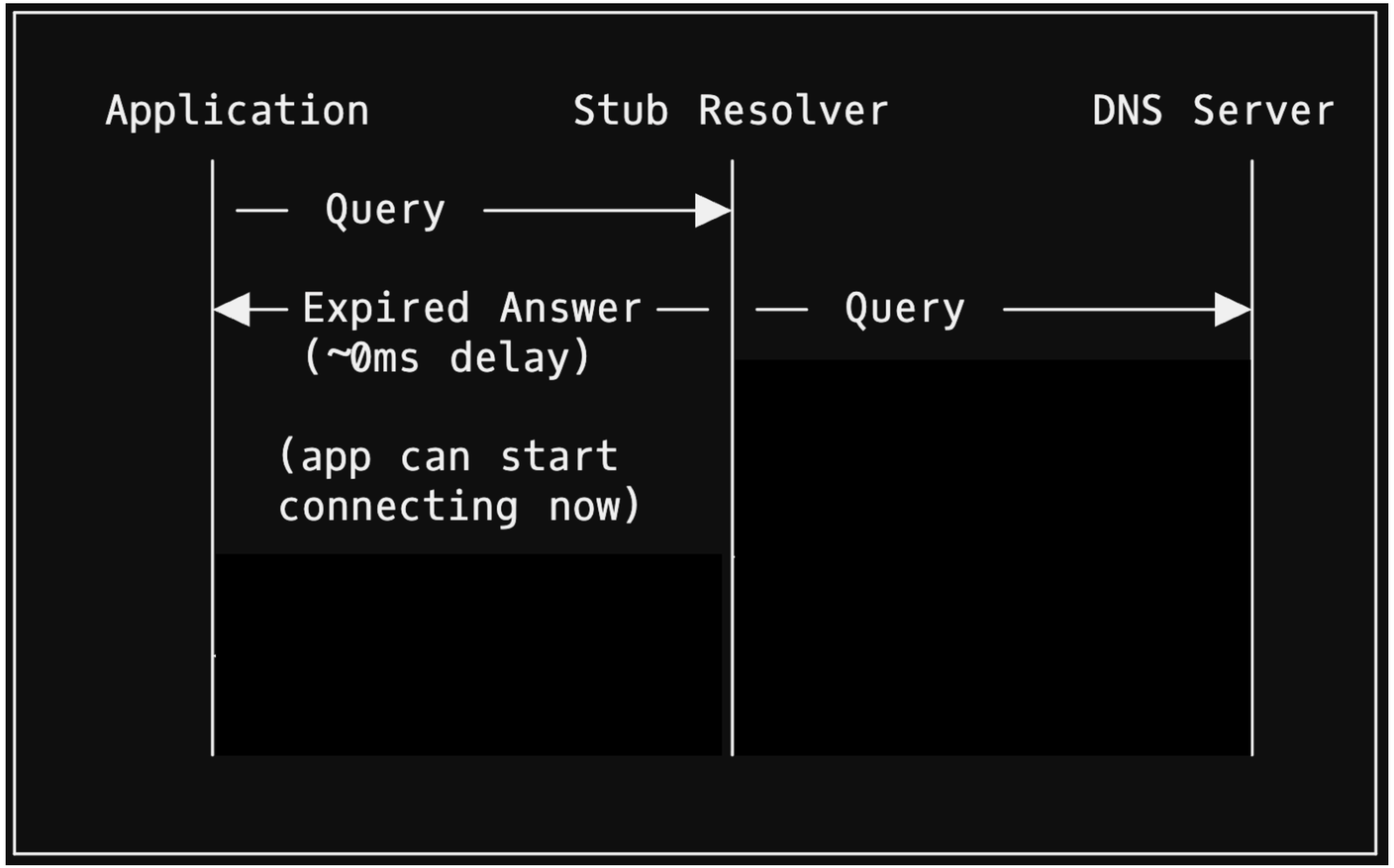

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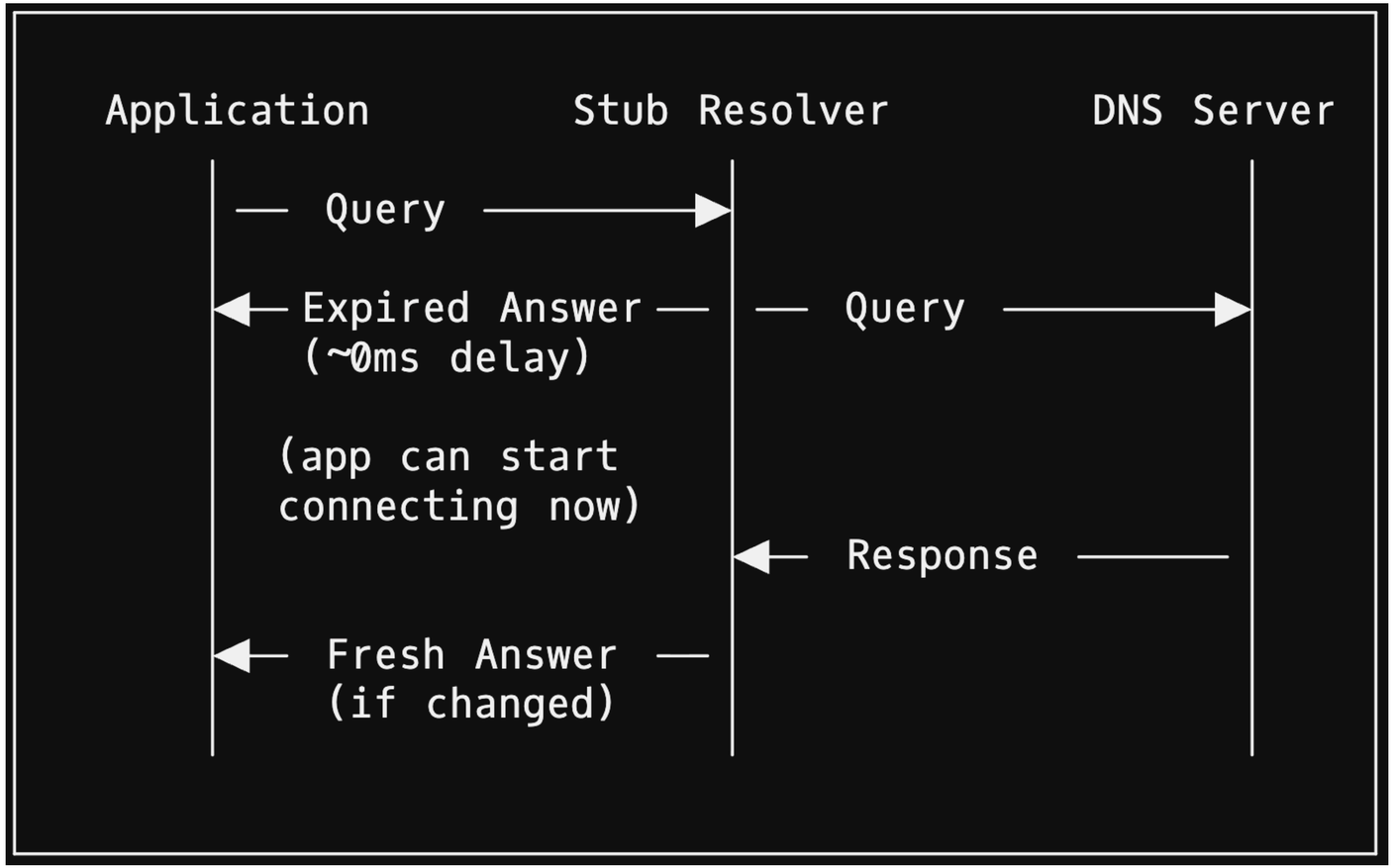

# Enabling Technologies

## Prerequisites for Optimistic DNS

- Asynchronous DNS
  - The application will continue getting updates to the DNS query.
- Happy Eyeballs
  - The application will continue trying new addresses till a connection is successfully made i.e., a failed attempt is not fatal to the application.

**Asynchronous DNS** makes
Optimistic DNS ***possible***.

**Happy Eyeballs** makes
Optimistic DNS ***safe***.

# Implementations

- mDNSResponder implements Optimistic DNS
  - September 2018
  - macOS 10.14 (Mojave) and iOS 12
- Mozilla Firefox and Google

# Next Steps

- Dispatch?
  - HAPPY WG or DNSOP WG?